

Polygraph

VOLUME 28

1999

NUMBER 1

Special Edition

Chart Interpretation

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Published Quarterly

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Manually Scoring Polygraph Charts Utilizing the Seven-Position Numerical Analysis Scale at the Department of Defense Polygraph Institute

Jimmie Swinford

This documentation sets forth information on how the seven-position numerical analysis scale is taught/utilized at the Department of Defense Polygraph Institute (DoDPI). It lists the criteria currently used at DoDPI for manually scoring all three physiological parameters recorded on polygraph charts during the conduct of a psychophysiological detection of deception (PDD) examination. Finally, this document identifies the DoDPI scoring procedures and methods utilized for assigning values, ranging from +1, +2, +3 and 0 to -1, -2 and -3, for the respiratory, electrodermal activity and cardiovascular tracings of a comparison question test (CQT) format.

Background Information

During the manual scoring process of test data analysis, the PDD examiner completes several steps before actually assigning values to recorded physiological responses. Initially, the examiner reviews the physiological data on the charts in an attempt to determine what an examinee's physiological tracing looks like while in a state of homeostasis or equilibrium. During this process, the PDD examiner also determines if there is any unwanted noise on the signal of interest when a scoreable question (comparison or relevant) was asked on the chart. If unwanted noise on the signal of interest is present, then a portion, or all, of the physiological activity recorded during that question may be unusable during the scoring process. However, just because unwanted noise appears in one of the physiological parameters does not mean that the other parameters in that analysis spot cannot be scored. For example, if an artifact appears in the respiratory tracings, they are not scored;

but the electrodermal and cardiovascular tracings may be scored if they have not been affected by the artifacted respiratory tracings. However, if all of the recorded physiological parameters appear to have been affected by unwanted noise, that particular question cannot be utilized during the scoring process.

Next, the examiner scores the charts using the appropriate analysis spots for that particular CQT format. After eliminating chart excerpts containing artifacts, recovery, and other unwanted noise, the examiner compares responses of the relevant question(s) to responses of the applicable comparison question(s) by individual physiological recorded parameters. Responses are only scored when there is no unwanted noise on the signal of interest at the time the stimulus was presented, and if the responses began within the response onset window (with latency exceptions). Depending on the type of response, respiratory responses end when recovery starts, the tracing returns to the prestimulus baseline or homeostasis returns. Electrodermal and cardiovascular responses end when the tracing either: (1) returns to the prestimulus baseline or (2) stabilizes at a new tonic level.

During the scoring process, physiological tracings in an analysis spot with no responses or comparable responses are assigned a value of "0". If there is any form of unwanted noise on the signal of interest that prevents that signal from being scored, a "(" (zero with a line through it) is placed on the score sheet. In the seven-position scale, magnitudes of plus and minus values, ranging from a +1, +2, or +3 to a -1, -2 or -3, are awarded according to specific analysis processes for each physiological activity.

After values are assigned for each analysis spot for all the PDD charts collected for an examination, these values are tallied and decisions are rendered according to the

specific cut-off scores necessary for a particular CQT format. Depending on the type of CQT or PDD examination, the examiner may render the following decisions:

Specific Issue CQT

1. No Opinion
2. No Deception Indicated (NDI)
3. Deception Indicated (DI)

Screening CQT

- No Opinion
- No Significant Responses (NSR)
- Significant Responses (SR)

Types of Physiological Criteria Utilized in the Scoring Process

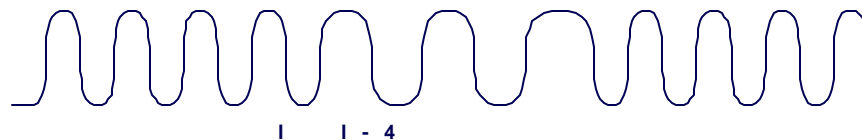
Respiratory Tracing:

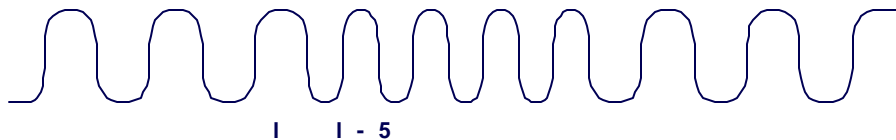
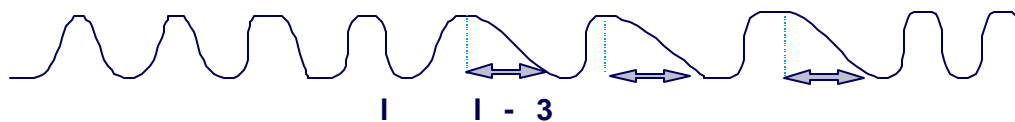
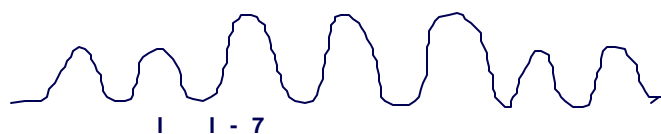
This is the display of physiological activity indicative of an examinee's breathing pattern that is recorded by a pneumograph component. The respiratory tracing consists of inhalation and exhalation cycles. An examinee's breathing pattern and rate may vary due to their physical conditioning. Normally, during the data collection phase, the examiner will attach two recording sensors (pneumograph chest assembly) to the examinee via some type of device. Typically, the pneumograph chest assembly consists of a

convoluted tube, return mechanism, anti-roll bars, beaded chain or velcro strips and rubber tubing for connection to the computer sensor box or analog instrument. One pneumograph chest assembly will be placed around the examinee's upper body area to record the thoracic breathing pattern. A second pneumograph chest assembly will be placed around the lower abdomen area to record the abdominal breathing pattern. When scoring the respiratory tracings, the PDD examiner will encounter the following five main categories of responses: (1) Changes in rate, (2) Changes in amplitude, (3) Change of baseline, (4) Loss of baseline and (5) Apnea. These five main categories of responses consist of the following 12 scoreable criteria:

R E S P I R A T I O N R A T E C H A N G E S

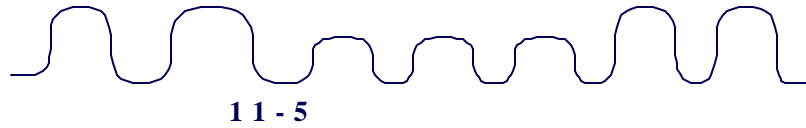
C r i t e r i a 1 : R e s p i r a t i o n R a t e D e c r e a s e



RESPIRATION RATE CHANGES**Criteria 2: Respiration Rate Increase****RESPIRATION RATE CHANGES****Criteria 3: Respiration Inhalation/
Exhalation Ratio Change****RESPIRATION AMPLITUDE CHANGES****Criteria 4: Respiration Amplitude Increase**

RESPIRATION AMPLITUDE CHANGES

**Criteria 5: Respiration Amplitude
Decrease/Suppression**



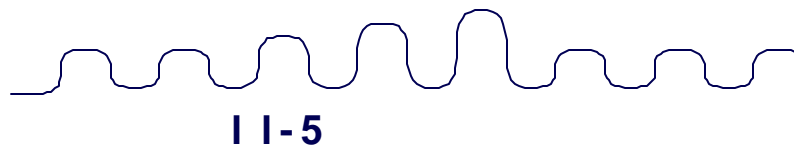
RESPIRATION AMPLITUDE CHANGES

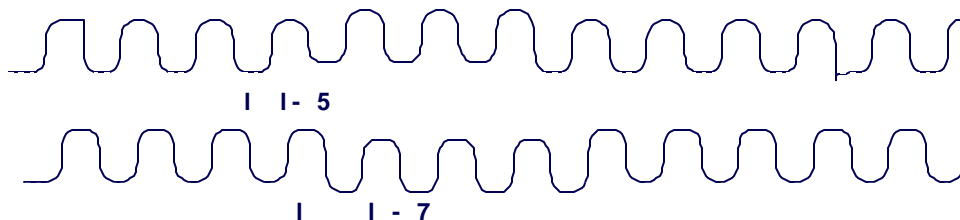
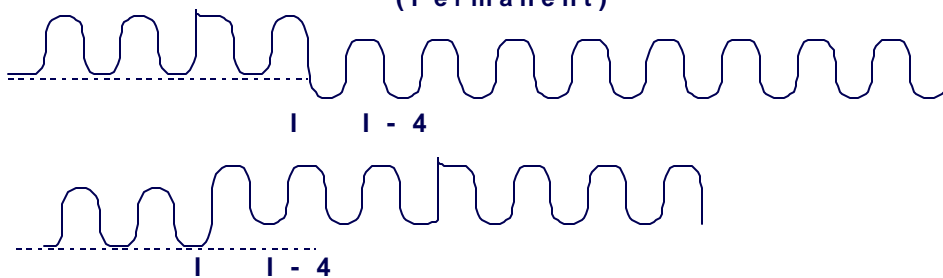
**Criteria 6: Progressive Increase
Followed by A Decrease**



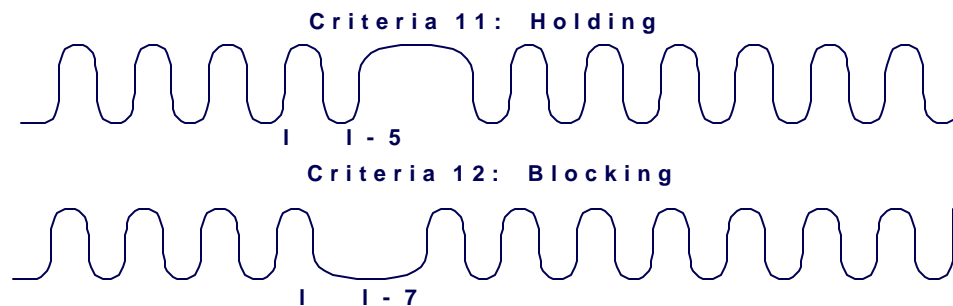
RESPIRATION AMPLITUDE CHANGES

**Criteria 7: Progressive Increase and
Return to Homeostasis**



RESPIRATION AMPLITUDE CHANGES**Criteria 8: Progressive Decrease and
Return to Homeostasis****RESPIRATION BASELINE CHANGE****Criteria 9: Respiration Baseline Change
(Temporary)****RESPIRATION BASELINE LOSS****Criteria 10: Respiration Baseline Loss
(Permanent)**

RESPIRATION APNEA



Scoring the Respiratory Tracing

During the process of scoring the respiratory tracings, the examiner must accomplish several steps before being able to score physiological data. First, the examiner must decide if a physiological change (response) has occurred in a timely manner. To be considered timely, a response should occur within the response onset window (typically from stimulus onset until the examinee's answer or first complete respiratory cycle after the answer to a reviewed test question) (latency exceptions excluded). Even if a physiological change has occurred in a timely manner, the examiner must also decide if there was any type of unwanted noise (artifact, recovery, etc.) on the signal of interest at the time the stimulus (question) was applied. Finally, the examiner must then determine what constitutes a response to the stimulus and when compensatory action (recovery) begins for this response. In respiratory tracings, if there is any type of response to a presented stimulus, there will generally be some form of recovery

(compensatory action) that will occur before an examinee's respiratory pattern returns to equilibrium or homeostasis. In scoring respiratory tracings, this is one of the more difficult determinations for a basic examiner student to make. It is imperative to make these distinctions as response can only be scored against response. An examiner cannot score response against any form of unwanted noise (i.e., artifact or recovery) or vice versa.

After making the above determinations, the examiner will award equal value for different response criteria. For example, if a comparison question has a change of baseline response and the relevant question has a decrease in amplitude response, then equal value will be assigned for these criteria in the scoring process. In this particular situation, a score of "0" would be appropriate unless one response lasted longer (more duration). Typically, in the seven-position scale, the examiner will utilize the following guidelines based on the number of observed physiological response criteria:

Question Type

<u>Comparison</u>	<u>Relevant</u>	<u>Assigned Value</u>
0 criteria	0 criteria	0
1 criterion	1 criterion	0 (unless duration is a factor)
1 criterion	0 criteria	+1
1 criterion	multiple criteria	- 1
Multiple criteria	0 criteria	+2
0 criteria	multiple criteria	- 2
0 criteria	dramatically better	- 3

In deciding whether a physiological response for one of the comparative questions has multiple criteria present, the examiner cannot decide that a specific response has multiple criteria if the observed response would automatically cause another criterion to be present. For example, an increase or decrease in amplitude or apnea will generally

cause a change in rate to occur. Even though there may appear to be multiple criteria present, it cannot be considered multiple criteria for scoring purposes. Typically, the following singular criterion will constitute multiple criteria when observed in respiratory tracings:

Singular Criterion

Amplitude and/or Rate Changes +
 Change/Loss of Baseline +
 Apnea +

Multiple Criteria

Apnea or baseline changes
 Apnea or amplitude/rate change
 Change or loss of baseline

In the seven-position scale, duration will generally allow assigning a value of only +/-1 (no more). Typically, duration is a factor only in those situations where one singular response criterion is compared against another singular response criterion. In these instances, if one response lasts longer (more duration), then a value of +/- 1 may be assigned for duration. However, if one comparative question has a singular response while the other comparative response exhibits

multiple criteria, then duration is generally not a factor. As a rule, multiple response criteria will cause more response duration than a singular criterion.

In scoring the respiratory tracings, the examiner will rarely assign values higher than a "0" or +/-1. Occasionally, an examiner may assign a value of +/-2 based on physiological criteria observed in the comparative questions. Rarely, examiners will assign a value of +/-3.

To assign a +/-3 value, the physiological response in one question must be so dramatically better (multiple criteria for an extended period) than the response it is being compared against.

Electrodermal Activity (EDA) Tracing

The EDA tracing is the display of an examinee's physiological patterns of either skin resistance or skin conductance of an exosomatic recording obtained with a galvanograph component. During the data collection phase, the examiner will attach a sensor to the examinee called the EDA fingerplate electrode assembly. Normally, the

fingerplate electrode assembly consists of two stainless steel plates, with velcro straps, and shielded cable for connection to the computer sensor box or analog instrument. Ideally, the fingerplates will be placed on two fingers of an examinee's non-dominant hand. During the data collection phase, once the sensor is attached to an examinee, an external (exosomatic) electrical signal is applied to the examinee's skin. The amount of resistance (skin resistance) that is encountered when the signal is applied or how freely the electrical signal travels (skin conductance) is recorded by the galvanograph component. The following criteria will be utilized when scoring an EDA tracing:

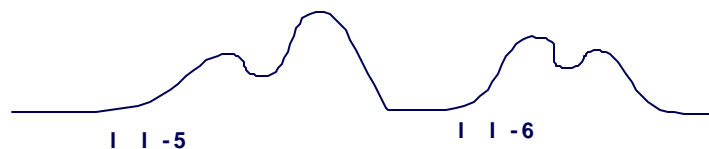
E L E C T R O D E R M A L T R A C I N G

C r i t e r i a 1 : A m p l i t u d e C h a n g e



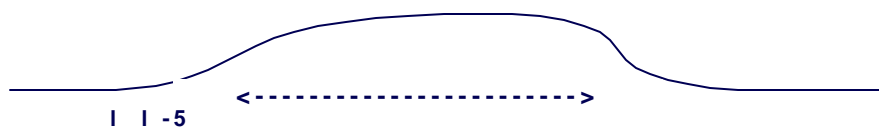
E L E C T R O D E R M A L T R A C I N G

C r i t e r i a 2 : C o m p l e x R e s p o n s e



ELECTRODERMAL TRACING

Criteria 3: Response Duration



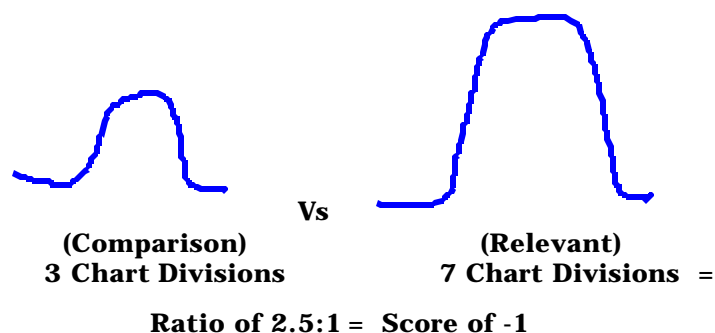
Scoring the EDA Tracing

In the seven-position numerical analysis scale, assigned EDA values are based on a ratio scale. This is the only physiological parameter where a ratio method is used in scoring the responses. Because the EDA component is generally the most responsive of all the physiological parameters recorded by the polygraph, the unit of measurement for determining ratio is generally a vertical chart division. If the compared responses are like responses (i. e., both amplitude or both complex) and they are equal in amplitude and duration, then a score of "0" is assigned and the ratio method is unnecessary. However, if one of the compared responses has significantly more amplitude than the other, the examiner will utilize the ratio method in assigning values. To determine the ratio for appropriate responses, the smaller response is divided into the larger response (i. e., six chart divisions divided by two chart divisions would be a ratio of 3:1). Once the ratio of responses is determined, then values are assigned based on the following ratio formula:

RATIO SCORE

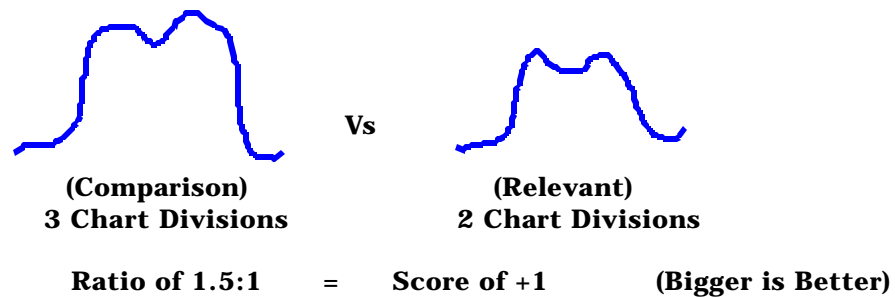
4:1	+3/-3
3:1	+2/-2
2:1	+1/-1
1:1	0

As an example, if there is a comparison question amplitude response of three chart divisions and a relevant question amplitude response of seven chart divisions, then the ratio would be 2.5:1 (7 divided by 3 equals 2.5). To determine the value for this response ratio, the examiner would utilize the ratio scale. In this case, the value would be a -1 since the larger response occurred in the relevant question. When using the ratio scale, the response must be at or above the appropriate ratio level to assign a specific value, (i. e., to assign a value of +/- 2, the response ratio must be at the 3:1 ratio level, etc.) In the above example, the response ratio was 2.5:1. Accordingly, since it was not at the 3:1 ratio level, the assigned score is a -1.



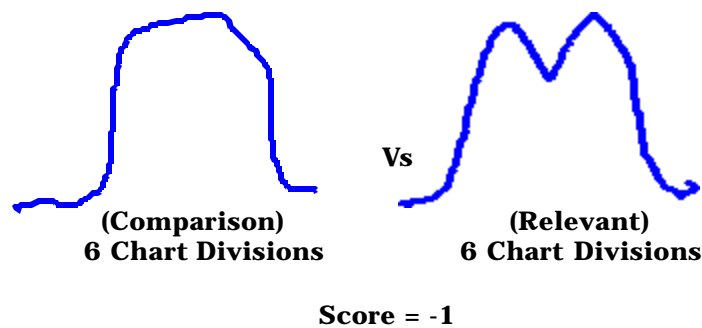
There is one exception to the above rule and that is when the ratio is less than 2:1. For instance, if there is a comparison question amplitude response of three chart divisions and a relevant question amplitude response of two chart divisions, the ratio is 1.5:1. If the ratio method were utilized, the assigned value would be a "0" since the ratio is less than 2:1. However, since the comparison response is 1.5 times larger in amplitude than the relevant question response, it cannot be ignored. As

such, when the ratio is less than 2:1, the concept of "bigger is better" applies for the initial +1/-1. In this instance, a score of +1 would be assigned, since the comparison question response is 1.5 times larger in amplitude than the relevant question. The "bigger is better" concept applies only to the initial +1 or -1. Once the compared responses reach a ratio of 2:1, this concept no longer applies.

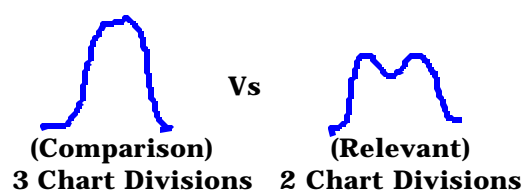


As indicated, all of the above concepts apply to "like responses", i. e., amplitude versus amplitude or complexity versus complexity. It would be great if examinees provided "like responses" all the time. However, as we all know, this does not always occur. As such, there must be provisions for comparing "unlike responses" (amplitude versus complexity) using the ratio method. In certain instances, complexity will allow assigning a value of +1 or -1 (no more).

When comparing an amplitude response to a complex response, complexity will only be considered when both responses are equal in amplitude or the ratio is less than 2:1. Once the ratio factor reaches a scale of 2:1, complexity is no longer a consideration and values are assigned for amplitude ratio. As an example, when there is a comparison question with an amplitude response of six chart divisions and a relevant question with a complex response of six chart divisions, the assigned value would be a -1.

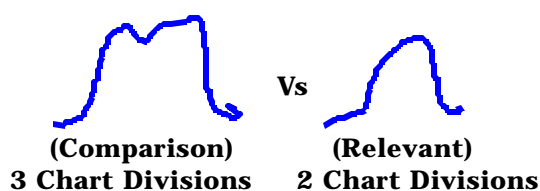


If the unlike compared responses are less than a 2:1 ratio in amplitude and the smaller response is complex, then the value will be a



Score = 0

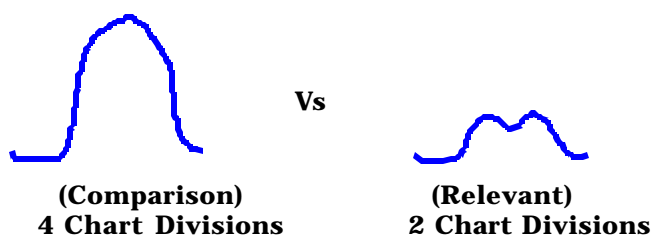
"0". If the larger response is complex, then complexity is no longer a consideration. For example:



Score = +1

Once the comparative ratio reaches a scale of 2:1, complexity is no longer a factor for consideration. Values are then assigned

for amplitude responses according to the ratio scale. For example:

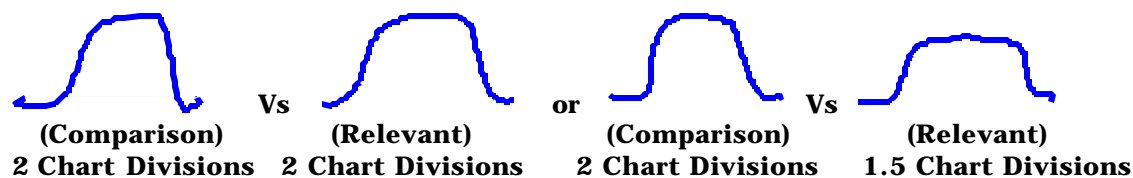


Ratio of 2:1 = Score of +1

Other EDA Scoring Considerations:

Duration in "like responses" will allow assigning a value of +1 or -1 only (no more). Duration is not a consideration in "unlike responses" (i. e., amplitude versus complexity) as complexity will generally have more

duration just by the nature of the type of response. Therefore, in assigning a value for duration, the responses must be similar responses (amplitude versus amplitude or complexity versus complexity) and they must be equal or equivalent in amplitude:



Score = -1 (Duration)

Score = 0

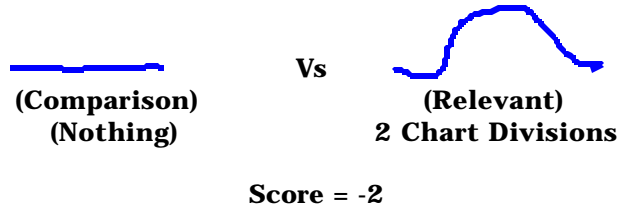
Something Against Nothing Concept

If one of the questions (comparison or relevant) has a physiological response, while the other question in the same analysis spot has no response (preventing utilization of the ratio method), then the unit of measurement (chart division) is utilized for assigning values.

By accomplishing this, an examiner can always be consistent in assigning values for the responses being scored. For instance, if there are no responses in the comparison question, while the relevant question has two chart divisions of amplitude response, a value of -2 may be assigned (since the unit of measure is a chart division). Likewise, if the

reverse were true, then a value of +2 would have to be assigned to be consistent in

applying this principle.



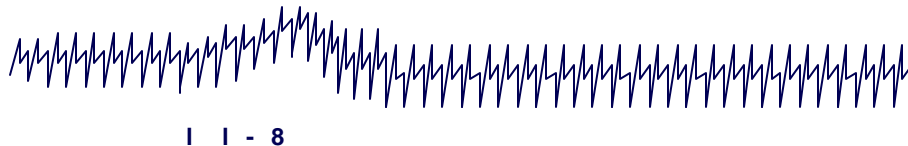
Cardiovascular Tracing

This tracing displays the physiological patterns of an examinee's relative blood volume and pulse rate that are recorded by a cardiograph component. The contraction and relaxation of an examinee's heart will cause the polygraph system (analog or computerized) to record the systolic stroke (heart contraction), diastolic stroke (relaxation period of the heart) and a dicrotic notch, which appears during the diastolic stroke of the heart. During the data collection phase, the sensor attached to the examiner will normally be a cardiovascular blood pressure cuff

assembly. Usually, this sensor consists of a rubber bladder, covered with a cloth sleeve and tightening component (velcro wrap), pump bulb assembly which includes a sphygmomanometer and associated rubber tubing for connecting the sensor to the computer sensor box or analog instrument. When scoring the cardiovascular tracing, the examiner will normally encounter four main categories of response. These are: (1) Changes in baseline, (2) Changes in amplitude, (3) Changes in rate and (4) Premature ventricular contractions. These four main categories of response consist of the following eight scoreable criteria:

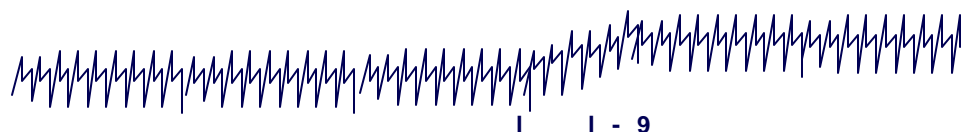
C A R D I O V A S C U L A R T R A C I N G

Criteria 1: Phasic Increase and Decrease in Baseline



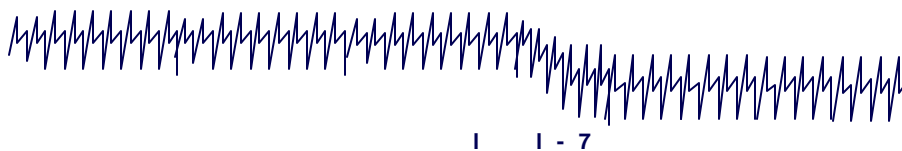
C A R D I O V A S C U L A R T R A C I N G

Criteria 2: Tonic Increase in Baseline



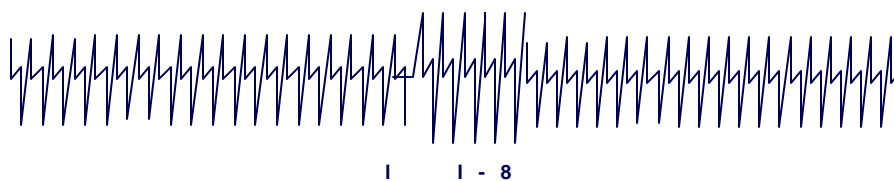
CARDIOVASCULAR TRACING

Criteria 3: Tonic Decrease in Baseline



CARDIOVASCULAR TRACING

Criteria 4: Increase in Amplitude



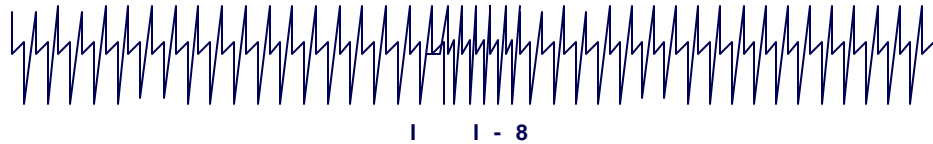
CARDIOVASCULAR TRACING

Criteria 5: Decrease in Amplitude



CARDIOVASCULAR TRACING

Criteria 6: Increase in Rate



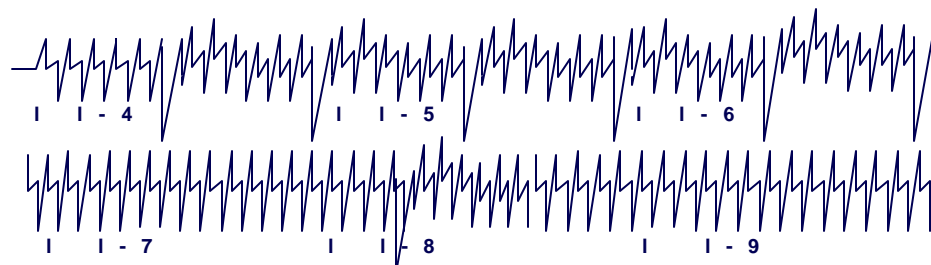
CARDIOVASCULAR TRACING

Criteria 7: Decrease in Rate



CARDIOVASCULAR TRACING

Criteria 8: Premature Ventricular Contractions (PVCs)



Scoring the Cardiovascular Tracing

The primary criteria used in scoring the cardiovascular tracing will be phasic increases and returns to baseline (baseline arousal) (criterion #1). Generally, the most common physiological response observed during a conventional PDD examination is an increase (arousal) from the baseline level—usually beginning at or near stimulus onset and lasting for a few seconds with an eventual return to the prestimulus tonic level. However, for some examinees, this response may last up to 30 seconds or more. If a baseline arousal response returns to the prestimulus level, it is considered a phasic response. If there is baseline arousal without returning to the prestimulus level, it is considered a tonic response. If there are physiological changes following both the comparison and relevant questions within an analysis spot, greater weight is assigned to the question that evoked the greater change either in the amount of (degree) or duration (length) of baseline change.

Since one of the major factors in properly using the seven-position scale is consistency in applying the scoring principles, the unit of measurement for scoring a phasic or tonic response is generally a vertical chart division. In assigning values, any amount of visually discernible baseline arousal is awarded a value of ± 1 . To reach the ± 2 level, the cardiovascular response must be at least two complete vertical chart divisions more than its comparative response. Likewise, for a ± 3 , the response must be at least three vertical chart divisions more than its comparative response.

In scoring a phasic response, duration of baseline arousal must be a consideration. Generally, duration of a cardiovascular response will allow assigning a value of ± 1 only (no more). If one response has slightly more baseline arousal, while the other response has slightly less arousal, but with more duration, then a score of "0" would be appropriate. If both compared responses have the same amount of baseline arousal, but one response has more visually discernible duration, then a value of ± 1 is given to the response having more duration. Once a score of ± 1 is assigned for baseline arousal in the

cardiovascular tracing, then duration is no longer a consideration.

Other Considerations in Scoring the Cardiovascular Tracing

If a score is given for a phasic change of baseline response, changes in amplitude, pulse rate and premature ventricular contractions in the cardiovascular tracing are generally not scored. Generally, these criteria are scored only when there is no baseline arousal of the cardiovascular tracing. When scored, values of ± 1 (no more) are awarded for changes in amplitude, pulse rate and/or premature ventricular contractions in the cardiovascular. Likewise, a value of ± 1 (no more) is awarded for a cardiovascular tracing having a tonic response (increase and/or decrease in baseline). Generally, in the comparison process, cardiovascular responses having unlike attributes (tonic against phasic; phasic response against a change in tracing amplitude with no baseline arousal; etc.) will result in a value of "0".

If both comparative responses have equal degrees and duration of baseline arousal, speed of arousal of the cardiovascular tracing from the baseline (if visually discernible) may allow assigning a value of ± 1 (no more).

If a consistent response is exhibited to a particular question or a category of questions—comparisons only or relevants only—throughout the entire PDD examination, premature ventricular contractions may be scored. If consistency is established, a value of ± 1 (no more) may be awarded for premature ventricular contractions; however, this cardiovascular criterion is seldom scored as consistency to a particular question or class of questions is rarely established.

Glossary of Terms

Analysis Spot - The relevant and comparison question(s) that are actually evaluated during spot analysis. The number of appropriate comparison question(s) for each relevant question will vary depending on test format used [i.e., Test for Espionage and Sabotage (TES) format, Zone Comparison Test (ZCT),

and Modified General Question Test (MGQT)]. Regardless of the test format, each relevant question is always compared to the most appropriate comparison question on a tracing by tracing basis. If the test format allows a relevant question to be compared to more than one comparison question, then the comparison question with the greater response for that physiological tracing is used for comparison purposes.

Artifact - A change in an examinee's physiological pattern (activity) that is not attributable to a reviewed test question (stimulus) or recovery.

Cardiovascular Tracing - A display of physiological patterns of an examinee's relative blood volume and pulse rate that are recorded by a cardiograph component. The contraction and relaxation of an examinee's heart will cause the polygraph to record the systolic stroke (heart contraction), diastolic stroke (relaxation period of the heart) and a dicrotic notch, which appears during the diastolic stroke of the heart. The criteria used to evaluate this physiological tracing are changes in baseline, changes in amplitude and changes in rate.

Comparison Question - A question that is designed to produce a physiological response. During spot analysis, the physiological responses of comparison questions are compared to the physiological responses of relevant questions.

Electrodermal Activity (EDA) Tracing - The display of physiological patterns of either skin resistance or skin conductance obtained through exosomatic recording with a galvanograph component. When evaluating this component tracing, the criteria considered are changes in amplitude, complexity of response and duration of response.

EDA Recovery Phase - The physiological activity displayed in an EDA tracing that occurs between the highest peak and subsequent return to the prestimulus or newly established baseline. The EDA recovery phase begins once the tracing has reached its highest peak.

EDA Rise Time - The physiological activity displayed in an EDA tracing beginning with response onset and ending at the peak.

Homeostasis - A complex interactive regulatory system by which the body strives to maintain a state of internal equilibrium. During test data analysis, the examiner looks at the physiological tracings to ensure that the examinee is in a state of homeostasis before a scoreable test question is presented. If an examinee's physiological activity is not in a state of homeostasis (i.e., there is noise on the signal of interest) when a scoreable question is presented, then subsequent physiological activity should not be considered a response to that stimulus and cannot be scored.

Psychophysiological Detection of Deception (PDD) Chart - A graphic representation containing selected physiological data generated by an examinee during the data collection phase of a PDD examination.

PDD Examination - A process that encompasses all activities that take place between a PDD examiner and an examinee during a specific series of interactions. These interactions may include the pretest interview, use of a polygraph to collect physiological data from an examinee while presenting a series of tests (data collection phase), test data analysis phase, and the post-test interview phase, which may include interrogation of the examinee.

PDD Examiner - Someone who has successfully completed formal education and training in conducting PDD examinations and is certified by his or her agency to conduct such examinations.

PDD Series - Collection of PDD charts by presentation of reviewed test questions to an examinee the number of times required by a particular PDD testing format. A PDD examination may consist of any number of PDD series.

PDD Test Data - The signal of interest that may consist of artifact(s), recovery, other noise or examinee physiological response(s) to stimuli.

PDD Test Data Analysis - Analysis of the psychophysiological responses recorded on the PDD chart(s). For scoring purposes, only data that are timely with an applied stimulus (reviewed test question) and free of artifacts and noise on the signal of interest can be considered.

Recovery (Returning to Homeostasis) - A deviation in a PDD tracing attributable to a physiological phenomenon occurring as a compensatory action after a response or an artifact.

Relevant Question - A question that pertains directly to the matter under investigation or to the issue(s) for which the examinee is being tested.

Respiratory Tracing - The display of physiological patterns indicative of an examinee's breathing activity as recorded by the pneumograph component. The respiratory tracing consists of inhalation and exhalation strokes. An examinee's breathing pattern and rate may vary due to their physical conditioning. Evaluation criteria considered during the scoring process are changes in amplitude, apnea, changes in rate, changes in baseline, and loss of baseline.

Response - A physiological change that occurs following, and is attributable to, the presentation of an applied stimulus (i.e., reviewed test question). Responses are evaluated when they occur within the response onset window (latency exceptions) and there is no noise on the signal of interest at the time the stimulus is presented. A phasic response is a discrete (known origin) response to a specific stimulus that is generally seen as an upward movement from the baseline with subsequent return to the prestimulus (original) baseline. A tonic response is a discrete (known origin) response to a specific stimulus that is generally seen as a movement from the prestimulus baseline and establishment of a new baseline without returning to the prestimulus baseline.

Response Amplitude - The displayed physiological activity reflected in a PDD tracing occurring between response onset and response peak (highest level from prestimulus baseline).

Response Duration - The physiological activity (time) displayed between response onset and offset. Typically, this is the time from response onset until return to the prestimulus baseline (phasic response) or a newly established baseline (tonic response).

Response Latency - The time between stimulus onset and response onset.

Response Onset - The first indication of change from the prestimulus level of physiological activity to an applied stimulus (reviewed test question). To be utilized during test data analysis, unless latency is involved, response onset must occur within the response onset window to an applied stimulus (reviewed test question).

Response Onset Window - The period of time between stimulus onset (verbal) and an examinee's verbal response to that stimulus (assuming an examinee's verbal response occurs in a timely manner). Typically, to be considered during test data analysis, an examinee's physiological responses should occur during that period. However, if an examinee consistently exhibits response latencies that are outside of this response onset window, the response onset window may be increased to include an examinee's consistent late responding.

Spot Analysis Concept - The procedure wherein each component tracing is separately evaluated by comparing the response of a relevant question to the response of a comparison question.

Stimulus Onset - During data collection, this is the beginning of the presentation of the first word of a reviewed question.

Tonic Level - An examinee's level of physiological activity occurring prior to stimulus onset. This is sometimes referred to as the resting or baseline activity level. Tonic level describes a person's physiological activity when resting.

Unwanted (Excessive) Noise on Signal of Interest - Any noise (physiological activity) that should prevent a stimulus (scoreable test question) from being presented during the data collection phase. If an examiner asks a

scoreable question when there is unwanted noise on the signal of interest, this may prevent that question from being utilized during the scoring process. However, unwanted noise on one physiological tracing may not prevent other tracings in that same analysis spot from being evaluated. For

example, unwanted noise on the respiratory tracings may prevent them from being evaluated. However, during the analysis process for that scoreable question, if the cardiovascular and/or EDA tracings are unaffected by the unwanted noise, they may be used for evaluation.

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